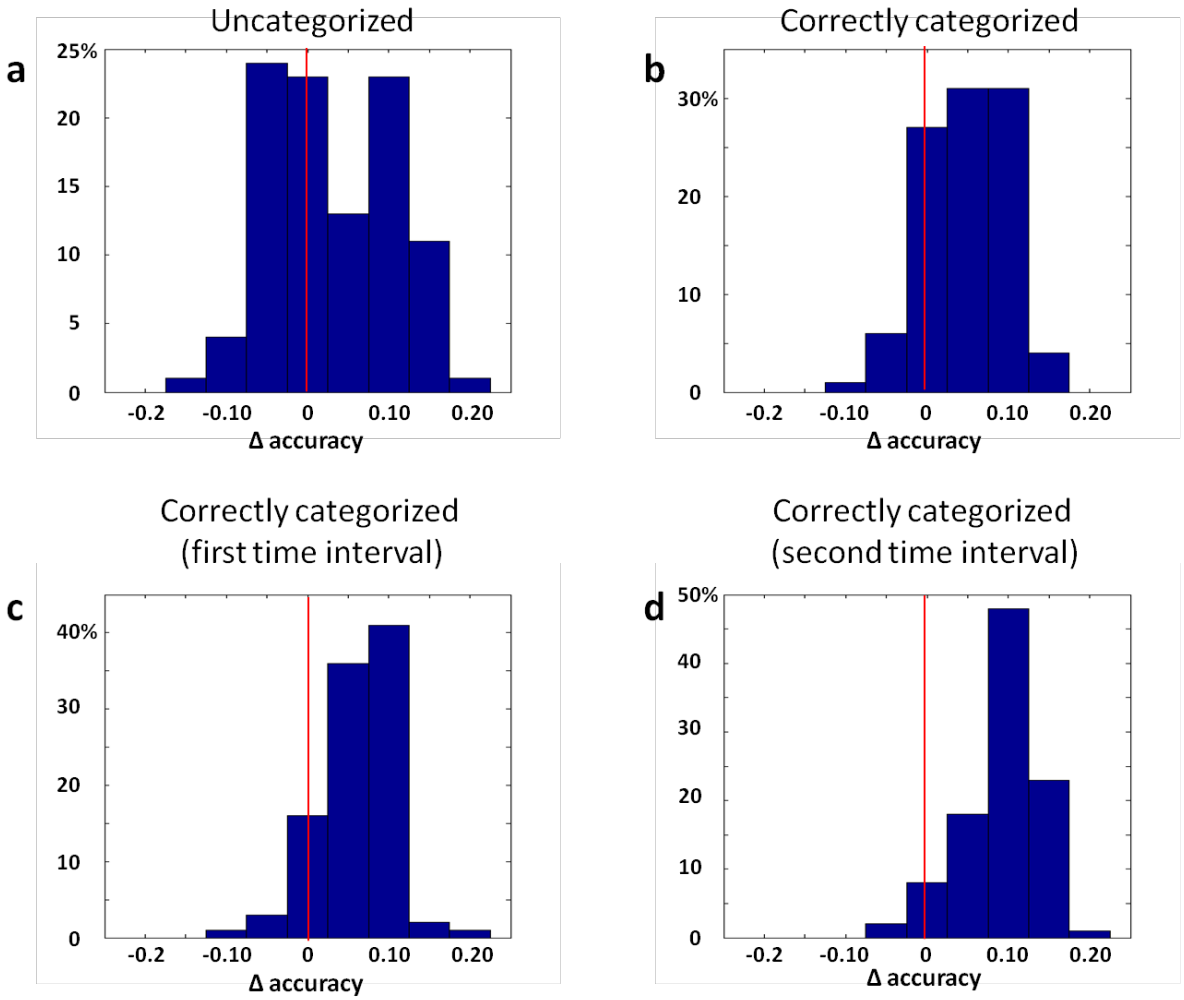
Living Sounds	Man-Made Sounds
Yawning1	Cannon
Yawning2	Glass breaking
Whistling1	Ratchet1
Whistling2	Ratchet2
Sneezing	Cash register
Laughter1	Tennis ball1 being hit
Laughter2	Tennis ball2 being hit
Crowd booing1	Decorking bottle1
Crowd booing2	Decorking bottle2
Gargling1	Church Bell1
Gargling2	Church Bell2
Clearing throat1	Chain1
Clearing throat2	Chain2
Baby crying	Zippo lighter
Screaming	Gong1
Chicken	Gong2
Cow1	Plastic bag
Cow2	Printer1
Eagle1	Printer2
Eagle2	Telephone ringing1
Crow	Telephone ringing2
Swarming bees1	Racecar engine1
Swarming bees2	Racecar engin2
Birds1 (birds)	Pneumatic drill1
Birds2	Pneumatic drill2
Owl1	Aerosol can1
Owl2	Aerosol can2
Cat	Police siren1
Rooster1	Police siren2
Rooster2	Paper bag1
Sea lion1	Paper bag2
Sea lion2	Opening pull tab1
Dog growling1	Opening pull tab2
Dog growling2	Gun1
Dog barking1	Gun2
Dog Barking2	Bycicle bell1
Wolf	Bycicle bell2
Pig1	Saw
Pig2	Elevator door
Duck1	PC Keyboard
Duck2	Striking matches1
Chimpanzee	Striking matches2
Lion1	Door bell
Lion2	Harmonica1
Frog	Harmonica2
Guinea pig1	Harp1
Guinea pig2	Harp2
Wolf1	Saxophone1
Wolf2	Saxophone2
Donkey1	Flute
Donkey2	Guitar1
Sheep1	Guitar2
Sheep2	Organ
	Accordion
	Violin

List of presented stimuli during the psychophysics and the EEG experiments for each of the semantic categories, living and man-made. For some objects we considered two versions of -physically different- sounds, i.e. sound1 and sound2. There were in total 108 stimuli, 53 and 55 living and man-made sounds.

Subj	Living	Man-Made
1	Dog growling1 Dog growling2 Pig2 Frog Lion1 Donkey Owl Sea Lion2 Swarming bees1 Swarming bees2 Wolf1 Wolf2 Guinea Pig1 Sneezing Laughter2 Yawning1 Yawning2 Gargling1 Screaming Whistling Whistling2 Baby Crying	Ratchet1 Ratchet2 Cannon Harmonica2 Plastic bag1 Saxophone1 Saxophone2 Elevator Door Opening pull tab2 Aerosol can2 Striking matches1 Striking matches2 Printer1
2	Swarming bees2 Dog Barking2 Birds Wolf Owl2 Guinea Pig1 Swarming bees1 Guinea Pig2 Screaming Screaming Laughter2	Decorking bottle2 Pneumatic Drill2 Saw1 Elevator Door Gun1 Bag Paper1 Bag Paper2 Striking matches1 Printer1 Aerosol can2 Plastic Bag2 PC Keyboard
3	Swarming bees1 Swarming bees2 Crowd Booing2 Chicken Donkey1 Owl2 Dog Growling2 Pig2 Guinea Pig1 Birds Laughter2 Gargling1 Screaming Baby crying	Ratchet1 Tennis ball2 being hit Harmonica Aerosol can2 Elevator Door Printer1 Door Bell Pneumatic Drill1 Saxophone1 Saxophone2 (2) Ratchet2 Elevator Door Violin

4	Pig2 Sheep2(2) Guinea Pig2 Donkey1 Swarming bees2 Dog Growling2 Sea lion2 Wolf2 Owl2 (2) Swarming bees1 Owl1 Baby crying Birds Crowd booing2 Laughter2 Screaming Whistling2 Yawning1 Yawning2	Paper bag2 Printer1 Cannon1 Aerosol can1 Opening pull tab2 Elevator Door Chain1 Chain2 Ratcher2 Aerosol can2 Plastic Bag2 Striking matches1 PC Keyboard
5	Swarming bees1 Swarming bees2 Dog growling2 Chicken Chimpanze2 Lion1 Birds Owl1 Donkey2 Dog growling1 Donkey1 Owl2 Owl1 Donkey2 Wolf1 Sneezing Laughter2 Yawning1 Yawning2 Screaming Whistling Gargling2 Whistling2 Baby crying2 Cow Crowd booing1 Crowd booing2 Guinea pig2	Paper bag2 Plastic bag2 Harmonica2 Aerosol Spray1 Police Siren2 Aerosol Spray2 Violin PC Keyboard Ratchet1 Printer1

List of sounds for which subjects answered as they could not recognize the semantic category at least once during the experiment. A subset of these sounds was sometimes correctly recognized as shown in Table3 (first and fourth columns for living and man-made sounds respectively). For some stimuli, no subjects could correctly guess the corresponding semantic category (i.e. Swarming bees); some other sounds were not categorized by only few subjects (i.e.'Gargling' by S1 and S3; 'Violin' by S3 and S5).



Histograms of the difference between the accuracy of the classifier and the 100 accuracies obtained by retraining the models on permuted data. Panel *a* refers to the accuracies obtained when classifying single trials in response to uncategorized sounds of the validation dataset (on which the true classifier provides a classification performance of 0.68). The panels from *b* to *d* refer to the accuracies when classifying single-trials in response to the correctly classified sounds. Panel *b* shows the histogram of the difference between the accuracy of the classifier and the permuted version of it when taking into account both time-periods 112-185ms and 270-342 post-stimulus onset. Panels *c* and *d* relate to those accuracies that were obtained when considering only the first or the second of these periods respectively. In all these histograms the bars on the right of the red line shows the percentage of times the true classifier behaves better than the permuted version. All these distribution are evidently shifts on the right of the red line indicating that the true classifier performs better than the permuted versions of it on a vast majority of cases.